

CLAIMS

What is claimed is:

1. A method for retiring instructions processed through various processing stages, comprising the steps of:
 - for each instruction capable of early retirement and at each stage of the various stages,
 - processing the instruction in accordance with the stage;
 - if the instruction meets the criteria for early retirement, then
 - terminating the instruction; and
 - updating a state of a system processing the instruction to reflect that the instruction has been terminated.
2. The method of claim 1 further comprises the step of proceeding the instruction to a next stage if the instruction does not meet the criteria for early retirement.
3. The method of claim 1 wherein the various processing stages include one or more of the following stages: fetching, issuing, sorting, executing, queuing, and retiring.
4. The method of claim 1 wherein the each instruction capable of early retirement includes an identification tag for identifying whether the instruction is capable of early retirement.

1 5. The method of claim 1 wherein NO-OP instructions, pre-fetch instructions, branch
2 instructions, nullified instructions, and predicated-false instructions are identified as
3 instructions capable of early retirement.

1 6. The method of claim 1 wherein the criteria for early retirement are met when
2 continued processing the instruction does not change the architectural state of the
3 system processing the instruction.

1 7. The method of claim 1 wherein the criteria for early retirement are met when
2 continued processing the instruction does not change the behavior of a program
3 running the instruction.

1 8. A computer-readable medium embodying instructions that cause a computer to
2 perform a method for retiring instructions processed through various processing stages,
3 the method comprising the steps of:

4 for each instruction capable of early retirement and at each stage of the various
5 stages,

6 processing the instruction in accordance with the each stage;

7 if the instruction meets the criteria for early retirement, then

8 terminating the instruction; and

9 updating a state of a system processing the instruction to reflect

10 that the instruction has been terminated.

1 9. The computer-readable medium of claim 8 wherein the method further comprises the
2 step of proceeding the instruction to a next stage if the instruction does not meet the
3 criteria for early retirement.

1 10. The computer-readable medium of claim 8 wherein the various processing stages
2 include one or more of the following stages: fetching, issuing, sorting, executing,
3 queuing, and retiring.

1 11. The computer-readable medium of claim 8 wherein the instruction capable of early-
2 retirement includes an identification tag for identifying whether the instruction is
3 capable of early retirement.

1 12. The computer-readable medium of claim 8 wherein NO-Op instructions, pre-fetch
2 instructions, branch instructions, nullified instructions, and predicated-false
3 instructions are identified as instructions capable of early retirement.

1 13. The computer-readable medium of claim 8 wherein the criteria for early retirement are
2 met when continued processing the instruction does not change the architectural state
3 of the system processing the instruction.

1 14. The computer-readable medium of claim 8 wherein the criteria for early retirement are
2 met when continued processing the instruction does not change the behavior of a
3 program running the instruction.

1 15. A system for retiring instructions processed through various processing stages,
2 comprising:
3 for each instruction capable of early retirement and at each stage of the various
4 stages,
5 a first processing unit for processing the instruction in accordance with
6 the stage; and
7 a second processing unit for, if the instruction meets the criteria for
8 early retirement,
9 terminating the instruction; and
10 updating a state of the system to reflect that the instruction has
11 been terminated.

1 16. The system of claim 15 further comprises a third processing unit for proceeding the
2 instruction to a next stage if the instruction does not meet the criteria for early
3 retirement.

1 17. The system of claim 15 wherein each instruction capable of early retirement
2 includes an identification tag for identifying whether the instruction is capable of early
3 retirement.

1 18. The system of claim 15 wherein NO-OP instructions, pre-fetch instructions, branch
2 instructions, nullified instructions, and predicated-false instructions are identified as
3 instructions capable of early retirement.

1 19. The system of claim 15 wherein the criteria for early retirement are met when
2 continued processing the instruction does not change the architectural state of the
3 system.

1 20. The system of claim 15 wherein the criteria for early retirement are met when
2 continued processing the instruction does not change the behavior of a program
3 running the instruction.